

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE 15.Aug.03		3. REPORT TYPE AND DATES COVERED MAJOR REPORT
4. TITLE AND SUBTITLE "CELLULAR TELEPHONE USE WHILE DRIVING: GROWING AWARENESS OF THE DANGER"			5. FUNDING NUMBERS	
6. AUTHOR(S) MAJ DE JONG MARLA J				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) UNIVERSITY OF KENTUCKY LEXINGTON			8. PERFORMING ORGANIZATION REPORT NUMBER CI02-1254	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) THE DEPARTMENT OF THE AIR FORCE AFIT/CIA, BLDG 125 2950 P STREET WPAFB OH 45433			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION AVAILABILITY STATEMENT Unlimited distribution In Accordance With AFI 35-205/AFIT Sup 1			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words)				
<p style="text-align: center;">DISTRIBUTION STATEMENT A Approved for Public Release Distribution Unlimited</p> <p style="text-align: right; font-size: 2em;">20030825 030</p>				
14. SUBJECT TERMS			15. NUMBER OF PAGES 8	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT	

Title: Cellular Telephone Use While Driving: Growing Awareness of the Danger

Author: Marla J. De Jong, RN, MS, CCNS, CCRN, CEN, Major

Doctoral Student

University of Kentucky, College of Nursing / United States Air Force

Lexington, KY

Contact Information: Marla J. De Jong

Disclaimer Statement: The opinions or assertions contained herein are the private views of the author and are not to be construed as official or as reflecting the views of the Department of the Air Force or the Department of Defense.

Cellular telephones (CT) made their debut in the mid 1980s. Today, they are a popular form of communication, with over 147.5 million US citizens subscribing to cellular telephone service.¹ This number continues to rapidly increase, a trend that will likely persist.

CTs have emergency, medical, and security benefits.² Cellular telephone owners have used their CTs to report drunk drivers, request emergency medical treatment, and report serious crimes. Cellular telephone technology has advanced to the point where persons can use their CT to send and read electronic mail, search the Internet, play games, organize their calendar, and even take and send photographs.

But in contrast to these appealing benefits, an emerging and alarming threat is the danger of using a CT while driving. Driver distraction due to activities such as CT use or eating causes at least 25% of motor vehicle crashes.³ Despite industry claims to the contrary, findings from a recent study indicated that CT use while driving does distract the driver and places the driver and other motorists at risk for crashes.⁴

A driver's first responsibility is the safe operation of the vehicle.⁵ Yet, over 85% of CT subscribers use their CT while driving⁶ and 60% of a typical individual's CT use occurs while driving.⁷ Drivers who use a CT while driving quadruple their risk for a crash.⁸ The problem is that drivers using CTs simply monitor too many secondary stimuli.⁹ This risk persists even after accounting for background distractions. In fact, the risk inherent in driving while talking on a CT is similar to the risk of driving with a blood alcohol level above the legal limit.^{8, 10} Research further reveals that those who converse more than 50 minutes per month on their CT while driving have a 5.6-fold increased risk of a crash.¹¹

Recent estimates are that CT use while driving contributes to 2,600 deaths and over 330,000 injuries annually.¹² But calculating the number of crashes, deaths, and injuries related to

CT use while driving is hampered by the fact that, until recently, few states collected data about how CTs contribute to crashes.¹³ Regrettably, motorists are putting not only themselves at risk, but innocent motorists and pedestrians as well. For example, a Virginia driver, engaged in a CT conversation, recently lost control of her sport utility vehicle, killing not only herself, but also four individuals in another vehicle.

Government officials and agencies have become aware of how CT use while driving endangers public safety. As a result, in 2001, New York became the first state to outlaw handheld (HH) CT use while driving. Arkansas and Tennessee enacted laws during 2003 that disallow school bus drivers from using a CT while driving. New Jersey passed a law disallowing inexperienced drivers from using a CT while driving, and the National Transportation Safety Board recently recommended that all states follow this lead. A bill, introduced into the United States Senate, would prohibit the use of HH CTs while driving. This proposed legislation stipulates that states not implementing the law would lose federal highway dollars. During 2003, legislators from 37 states considered various legislation pertaining to CT use while driving. Bills in Alaska and California would outlaw HH CT use while driving. Indiana officials are considering a bill that would disallow all CT use while driving. And, if passed, a bill in Maryland would prohibit drivers who are minors from using a CT while driving. Most of these bills would permit emergency response personnel to use CTs while driving.

The international community seems well aware of the dangers of CT use while driving. Over 20 countries, including Japan, Australia, Brazil, Spain, South Korea, and Germany, prohibit HH CT use while driving. Israel, Portugal, and Singapore prohibit *all* CT use while driving.

In the author's experience of testifying for a bill about this topic, she learned that the cellular telephone industry and business leaders have successfully opposed much legislation that

would limit CT use while driving. What's more, CT service providers -- for example, Cingular Wireless and Verizon Wireless -- contend that using a hands-free (HF) CT model promotes safe driving. But, contrary to these claims, and to popular belief, the use of a HF CT while driving appears to be just as dangerous as using a HH model.

The only way to prevent injuries and deaths related to CT use while driving is to disallow the use of *all* CTs while driving. There is scientific evidence to support such policies.

Researchers have found that those who use a CT while driving have significantly delayed reaction times^{14, 15} and are more likely to crash when driving in congested traffic and talking on a HF CT.⁴ In one study, participants consumed either an alcoholic or placebo beverage and then drove on four different road conditions.¹⁶ Sober drivers using a CT had a 30% slower reaction time and missed more road warning signs than the drunk drivers. Although HF type CTs were safer than HH phones, drivers using HF telephones remained more dangerous than the drunk drivers.

Cellular telephone use while driving may cause "inattention-blindness" because drivers focus on the telephone conversation rather than on driving.⁴ Results of a study indicated that individuals who spoke on a CT while driving were less likely to remember what they had seen while driving and were twice as likely to miss traffic signals.¹⁴ Researchers have shown that drivers who talk on a CT while driving have more fixed eye movements that may prevent them from detecting stimuli that require action on their part. Interestingly, this fixed eye movement persisted after the discussion ended, presumably because drivers continued to ponder the conversation.⁹ In another study, drivers who talked on a HF CT and drove in simulated conditions reacted more slowly, especially at the beginning of the conversation, and were less aware of their situations than drivers who were not using a CT.¹⁷ Finally, research data show

that drivers with a CT were more likely to drive at an unsafe speed, be inattentive, drive on the wrong side of the road, crash into a fixed object, drive off the road, swerve just before a crash, and overturn their vehicle.¹⁸

Some argue that CT use while driving is no more distracting than other distractions such as tuning a radio, reading a map, or eating. However, investigators have shown that CT use increases the risk of a crash more than the combined driving effects of drinking a beverage, lighting a cigarette, *and* taking one's hand off the steering wheel.¹¹ And, unlike conversations with passengers, the person on the other end of the telephone call cannot see when the highway situation requires the driver's complete attention or warn the driver of an imminent danger.

Recognizing these dangers, some major companies, such as Johnson & Johnson, do not allow their employees to use a CT while driving during business hours. Drivers have been prosecuted because their CT conversation caused a crash and have met with stiff penalties. A Nevada woman who killed two people after she ran a red light while talking on her CT was found guilty of involuntary manslaughter. The judge sentenced her to jail, revoked her driver's license for 5 years, sentenced her to perform community service, and ordered her to pay a large restitution to the victims' families.¹⁹

To prevent similar catastrophes, emergency nurses can make a difference in the following ways:

- Avoid placing a CT call while driving.
- Pull off the road if an incoming CT call demands your immediate attention.
- Develop and disseminate professional educational programs, emphasizing both the dangers of CT use while driving and the need to refrain from CT use while driving.

- Encourage your professional organizations at the state and national level to support legislation and enforcement programs which disallow CT use while driving.
- Encourage the local chapter of your professional association to take an active role in media campaigns, health fairs, and other targeted safety causes to spread the message about the dangers of CT use while driving.
- Urge those who work for you to avoid CT use while driving.
- Educate your patients about the dangers of talking on a CT while driving.
- Urge CT service providers to educate consumers about avoiding all CT use while driving.
- Encourage your local, state, and national elected officials to sponsor and pass legislation that disallows CT use while driving.
- Partner with special interest groups and specialty organizations who advocate for measures that will reduce driver distraction related to CT use while driving.

In summary, scientific evidence indicates that CT use while driving is just as dangerous as drunk driving, a practice that no one would sanction. However, many consumers have grown accustomed to the convenience of CTs and now demand the right to use a CT while driving. Meanwhile, the CT industry continues to falsely reassure millions of consumers by maintaining that use of a HF CT promotes safe driving. This premise is flawed because it appears that the source of greatest danger is the conversation itself. In this author's view, *no* one should use a CT while driving, and laws that disallow all CT use while driving will prevent the loss of innocent life.

References

1. Cellular Telecommunications & Internet Association. 2003. Accessed July 9, 2003, from <http://www.wow-com.com>.
2. Peters GA, Peters BJ. The distracted driver. *The Journal of the Royal Society for the Promotion of Health* 2001;121:23-8.
3. Stutts JC, Reinfurt DW, Staplin L, Rodgman EA. The role of driver distraction in traffic crashes. 2001. Retrieved January 30, 2003, from <http://www.aafts.org/pdf/distraction.pdf>.
4. Strayer DL, Drews FA, Johnston WA. Cell phone-induced failures of visual attention during simulated driving. *J Exp Psychol Appl* 2003;9:23-32.
5. National Safety Council. Multitasking statement. 2002. Retrieved March 11, 2003, from <http://www.nsc.org/news/policy/multitasking.htm>.
6. Goodman M, Bents FD, Tijerina L, Wierwille W, Lerner N, Benel D. An investigation of the safety implications of wireless communications in vehicles. U. S. Department of Transportation. 1997. Retrieved January 28, 2003, from <http://www.nhtsa.dot.gov/people/injury/research/wireless/>.
7. Hahn RW, Tetlock PC, Burnett JK. Should you be allowed to use your cellular phone while driving? *Regulation* 2000;23:46-55.
8. Redelmeier DA, Tibshirani RJ. Association between cellular-telephone calls and motor vehicle collisions. *N Engl J Med* 1997;336:453-8.
9. Sodhi M, Reimer B, Llamazares I. Glance analysis of driver eye movements to evaluate distraction. *Behavior Research Methods, Instruments, & Computers* 2002;34:529-38.

10. Redelmeier DA, Tibshirani RJ. Car phones and car crashes: some popular misconceptions. *Can Med Assoc J* 2001;164:1581-2.
11. Violanti JM, Marshall JR. Cellular phones and traffic accidents: an epidemiological approach. *Accid Anal Prev* 1996;28:265-70.
12. Cohen JT, Graham JD. A revised economic analysis of restrictions on the use of cell phones while driving. *Risk Anal* 2003;23:5-17.
13. Llaneras, RE. NHTSA driver distraction internet forum. National Highway Traffic Safety Administration. 2000. Retrieved January 30, 2003, from <http://www-nrd.nhtsa.dot.gov/pdf/nrd-13/FinalInternetForumReport.pdf>.
14. Strayer DL, Johnston WA. Driven to distraction: dual-task studies of simulated driving and conversing on a cellular telephone. *Psychol Sci* 2001;12:462-6.
15. Lamble D, Kauranen T, Laakso M, Summala H. Cognitive load and detection thresholds in car following situations: safety implications for using mobile (cellular) telephones while driving. *Accid Anal Prev* 1999;31:617-23.
16. Direct Line Motor Insurance (2002). The mobile phone report: A report on the effects of using a 'hand-held' and 'hands-free' mobile phone on road safety. Retrieved March 3, 2003, from [http://info.directline.com/xxx/news.nsf/64125738690474fe00256a6f003a151b/bec9c738833c7fb180256b84002dec5f/\\$FILE/Mobile%20Phone%20Report.pdf](http://info.directline.com/xxx/news.nsf/64125738690474fe00256a6f003a151b/bec9c738833c7fb180256b84002dec5f/$FILE/Mobile%20Phone%20Report.pdf).
17. Parkes A, Hooijmeijer V. The influence of the use of mobile phones on driver situation awareness. 2000. Retrieved on January 25, 2003, from <http://www-nrd.nhtsa.dot.gov/departments/nrd-13/driver-distraction/PDF/2.PDF>.
18. Violanti JM. Cellular phones and traffic accidents. *Public Health* 1997;111:423-8.

19. Oliver, R. (2001, November 29). Woman pleads guilty to three felony reckless driving counts. *Las Vegas Review-Journal*. Retrieved July 10, 2003, from http://www.reviewjournal.com/lvrj_home/2001/Nov-29-Thu-2001/news/17551063.html.